Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in the 5925-6425 MHz/3700-4200 MHz Bands and 14.0-14.5 GHz/11.7-12.2 GHz Bands	)	IB Docket No. 02-10

To: The Commission

REPLY COMMENTS OF BROADBAND MARITIME, INC.

Broadband Maritime, Inc. ("Broadband Maritime"), by its attorneys and pursuant to Section 1.415 of the Commission's rules,[1] hereby files its reply comments in the captioned docket regarding procedures to govern the use of satellite earth stations on board vessels ("ESVs"). The Commission issued a Notice of Proposed Rulemaking ("NPRM"), FCC 03-286, on November 24, 2003. By Order Extending Comment Period, DA 04-579, released March 1, 2004, the Commission extended the deadline for filing reply comments to March 24, 2004. Broadband Maritime is specifically replying to those comments filed by the Fixed Wireless Communications Coalition ("FWCC"), the Association of Public-Safety Communications Officials-International, Inc. ("APCO"), King County, Washington ("King County") and Pinnacle Telecom Group, LLC ("Pinnacle").

I. Interference Issues

Without any substantiation, FWCC is once again raising the banner of interference that it claims would be caused to public safety and critical infrastructure organizations by ESVs

[1] All references to the Commission's rules shall be to 47 C.F.R. §§ 0.1 *et seq.*

operating in the C-Band. FWCC has been rallying behind the battle cry of interference for many years, but just like the people of Salem, Massachusetts never found any real witches, FWCC and its members never found any harmful interference, despite the many years of ESV operation by Broadband Maritime and its competitors. And just as many innocent people were burned at the stake in Salem, Massachusetts based on accusations of witchcraft, FWCC is attempting to shut down all ESV C-Band operations by demanding that the Commission impose restrictions on ESV C-Band use that are so onerous that it becomes technically and financially impossible for ESVs to operate in the C-Band. As a practical reality, if ESVs cannot operate in the C-Band, most ocean going vessels would be without ESV capability.

FWCC makes theoretical claims of harmful interference but provides no substantiation to its claims. It attaches to its comments a highly speculative paper by W.D. Rummler entitled "Identification of Harmful Interference." Mr. Rummler makes the claim:

> [A]n interference power that is 20 dB below the desired signal power would be sufficiently strong to put a fixed service receiver, which was using high level complexity digital modulation, into a continuously errored state. Yet such an interference power is almost impossible to detect since the sum of the desired signal power and the interference power is only 1 percent greater than the power of the signal without interference.

It is hard to imagine that Mr. Rummler's assertion is correct. Designing a receiver to be unable to tolerate undesired signals that are only one percent of the signal strength of the desired signal is an example of an inherently flawed system design and runs counter to the general Commission objective of encouraging manufacturers to improve receiver immunity performance. Since most microwave paths and earth stations operating in the C-Band today were not frequency-coordinated to maintain signal strength differences of 20 dB or greater between desired and undesired signals, if Mr. Rummler were correct, the various fixed service receivers would be

suffering harmful interference from fixed service transmitters on a regular basis. Since this is not the case, it is highly unlikely that Mr. Rummler's assertions are correct.[2]

King County also expresses general concerns over the difficulty of detecting interference, and thus proposes that ESVs should not be permitted to operate in the C-Band within coastal waters and inland waterways. Even though ESVs have been operating in the Puget Sound area for many years, King County does not specify even one instance of suspected interference from an ESV, but instead resorts to a discussion of interference from military shipboard radar units, which have nothing to do with ESVs. APCO says even less, asserting that it is worried about interference and that it supports the comments filed by FWCC.

In reality, if the fixed wireless community were experiencing interference from ESVs, they would be asserting specific cases of unidentified interference, naming the frequency, date, time and place, and they would be asking ESV operators whether the operations of their ESVs coincided with such reports of interference. The fact that this has not happened is strong evidence that ESVs have been operating in the C-Band for many years without causing interference to fixed wireless receivers.

II. FWCC C-Band Proposals

FWCC proposes that the Commission not permit any ESV C-Band operations within 300 km of the U.S. coastline. However, as mentioned earlier, FWCC's proposal would eliminate ESV service for most ocean-going vessels. As discussed in its opening comments, Broadband Maritime places its ESVs on ocean going commercial ships that travel to ports all over the world. Ku-Band service is limited to certain coastline areas and is simply not available over most ocean

[2] Moreover, it would be nearly impossible for fixed wireless users to add additional microwave paths if they were frequency-coordinated to Mr. Rummler's asserted standard of maintaining a 20 dB difference between desired and undesired signals.

areas. Nor is it practical or financially feasible for Broadband Maritime to switch to Ku-Band operations as its ESVs approach the ports in the United States. Shutting down the C-Band operation to repoint the ESV to another satellite and switch to Ku-Band would not only cause an interruption of service, but would require a person skilled in this aspect of ESV operations to be on the ship. The time period when the ship is approaching port is a very critical time for communications—and this would be the very time when the ESV would be shut down as it is switched from C-Band to Ku-Band operations.

In addition to the practical and technical problems, adding Ku-Band capability would substantially increase the cost of providing ESV service without reducing any C-Band costs. In reality, if dual-band service were required on each ship, it would not be economically feasible to provide ESV service. Contrary to the claims of FWCC, ESV service provides substantial benefits to the shipping industry. The shipping industry relies heavily upon broadband connections for the safety of its crew and to conduct business. Since there has been no substantiation of interference caused by ESVs to fixed wireless receivers, there is no reason for the Commission to accede to FWCC's unreasonable demands.

FWCC opposes the non-coordination approach, claiming that uncoordinated ESV C-Band operations will lead to interference. However, ESVs have been operating on a non-interference basis without frequency coordination for many years and have not caused any harmful interference to fixed wireless receivers. Therefore, past experience demonstrates that operation of ESVs on an uncoordinated non-interference basis is workable.

Pinnacle also opposes non-coordinated operations. However, Pinnacle's clients place ESVs on cruise ships, which regularly visit the same ports, Navy ships, which visit only a limited number of ports, and oil rigs, where ESVs are in reality temporary fixed operations. For these

types of operations, frequency coordination makes a great deal of sense, and is, in fact, preferable.

Unlike Pinnacle's clients, Broadband Maritime's ESVs are placed on ocean going commercial ships that travel all over the world, and these ships do not generally frequent particular ports. Moreover, it is not uncommon for the ships to visit certain ports only once every few years. Broadband Maritime checks the frequency usage environment at the ports where the ships with its ESVs will be visiting and selects frequencies that would not cause interference. On the other hand, it would be very costly and therefore not practical to coordinate frequency usage and apply for licensing at each possible port in the United States. Therefore, to the extent Broadband Maritime places any of its ESVs on United States-registered ships, Broadband Maritime would need to utilize the Commission's proposed Non-Coordination Approach for C-Band licensing.

[Mary Ellen - please let me know whether you want this paragraph] FWCC proposes that ESV C-Band usage be limited to ships of 5,000 gross tons or larger. However, the Commission's proposal to limit usage to ships of 300 gross tons or larger is sufficient to ensure that C-Band ESVs are not placed on relatively small ships that will travel far into inland waterways. Since FWCC's proposal is overly restrictive, Broadband Maritime supports the Commission's proposal to restrict C-Band ESVs to ships of 300 gross tons or larger.

III. Conclusion

For the reasons discussed above, Broadband Maritime strongly urges the Commission to reject the proposals of FWCC, King County and APCO and to reject Pinnacle's proposal to permit C-Band ESV operations on a frequency coordinated basis only.

Respectfully submitted,

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